The Journal of Systems and Software

Volume 11, Number 1, January 1990

Contents

Editor's Corner: Software Design: Is There Madness in a Method? 1
Robert L. Glass

SPECIAL ISSUE ON CONCURRENCY

Algorithms for Analyzing Concurrent Software Systems Using Derivatives 3
Allan M. Stavely

A Knowledge-Based Approach for High-Level Programming of Concurrent Systems 21
Phillip C-Y. Sheu

Secondary Storage in a Concurrent Logic Programming Environment 31
Anthony J. Kusalik

On the Management of Long-Living Transactions 45
K. Brahmadathan and K. V. S. Ramarao

Formal Specifications of Resource-Deadlock Prone Petri Nets 53
D. E. Cooke

Controversy Corner: The Decision Makers 71
Israel Pressman

Biographies 75

Volume 11, Number 2, February 1990

Contents

Editor's Corner: Software Maintenance is a Solution—Not a Problem 77
Robert L. Glass

SPECIAL ISSUE ON DISTRIBUTED SYSTEMS

Dynamic Load Balancing in a Distributed System Using a Sender-Initiated Algorithm 79
Anna Hać and Xiaowei Jin

An Object-Oriented Approach To Distributed Data Management 95
M. P. Papazoglou and L. Marinos

Fault-Tolerant Mutual Exclusion Algorithms 111
Shivakant Mishra and Pradip K. Srimani

Efficient Fault-Tolerant Broadcasts 131
K. V. S. Ramarao

Specifications of Distributed Systems in Prolog 143
Hasan Ural

Biographies 155

Volume 11, Number 3, March 1990

Contents

Editor's Corner: Some Pros and Cons on (of all things!) References 157
Robert L. Glass

Asset-R: A Function Point Sizing Tool for Scientific and Real-Time Systems 159
Donald J. Reifer

An Approach to Derive Time Costs of Sequential Computations 173
Reda A. Ammar and Bin Qin

Real-Time Garbage Collection on General-Purpose Machines 181
Taiichi Yuasa

Interface Design: An Educational Perspective 199
A. Russell Jones and Esther R. Steinberg

Local Correction of Mod(k) Lists 205
I. J. Davis and D. J. Taylor

***A Workshop Report:* Software Engineering Ethics** 215
Donald Gotterbarn

An Empirical Study of the Use of the GOTO Statement 217
Barbara A. Benander, Narasimhaiah Gorla, and Alan C. Benander

Biographies 225

Volume 12, Number 1, April 1990

Contents

Editor's Corner: The Mystery of the Little Chinese Boy and His Computer 1
Robert L. Glass

Data Flow Testing in STAD 3
Janusz Laski

The Use of Executable Assertions for Error Detection and Damage Assessment 15
Ali Jaoua and Ali Mili

Models of Software Accumulation 39
Aimo A. Törn

Production Probability Estimators for Context-Free Grammars 43
Keith Humenik and Roger S. Pinkham

A Proposal for Measuring the Structural Complexity of Programs 55
Rade Adamov and Lutz Richter

Controversy Corner: A Debate, Zucconi vs. Reifer

U.S. Technology: We're Losing the Edge in Software 71
Lin Zucconi

Is Asia Really a Threat? 74
Donald J. Reifer

Response to "Is Asia Really a Threat?" 77
Lin Zucconi

Biographies 79

Volume 12, Number 2, May 1990

Contents

Editor's Corner: Theory versus Practice—Revisited 81
Robert L. Glass

SPECIAL ISSUE ON THE ROLE OF LANGUAGE IN PROGRAMMING

A Foreword to the Special Issue of the Journal of Systems and Software on the Role of Languages in Programming (the Tenth Tunisian-French Seminar of Computer Science) 83
Jean Pierre Finance and Ali Mili

Comparing Communication in Two Languages Employing Buffered Message-Passing 87
Chris Marlin and Dennis Freidel

TRIO: A Logic Language for Executable Specifications of Real-Time Systems 107
Carlo Ghezzi, Dino Mandrioli, and Angelo Morzenti

A Framework for the Support of a Common Structural Level for Software-, Data Base-, and Knowledge-Based Systems 125
R. Motschnig-Pitrik

An Object-Oriented Model Based on Relations 139
Hafedh Mili, John Sibert, and Yoav Intrator

The HIBOL-2 Environment: A Basis for Visual Programming of Business Objects 157
Heidemarie Wernhart and Roland Mittermeir

Controversy Revisited: On the Resolution of the Software Science Anomaly 167
Stuart H. Zweben with a response by David N. Card and William W. Agresti

Biographies 173

Volume 12, Number 3, July 1990

Contents

Guest Editor's Introduction: The Oregon Workshop on Software Metrics 175
Warren Harrison

SPECIAL ISSUE ON THE OREGON WORKSHOP ON SOFTWARE METRICS

Deriving Structurally Based Software Measures 177
Norman Fenton and Austin Melton

Design and Code Traceability Using a PDL Metrics Tool 189
Paul W. Oman and Curtis R. Cook

Prediction and Control of ADA Software Defects 199
B. Terry Compton and Carol Withrow

Evaluating Techniques for Generating Metric-based Classification Trees 209
Adam A. Porter and Richard W. Selby

METKIT and the ESPRIT Program 219
Robin Whitty, Martin Bush, and Meg Russell

Software Measurement: A Conceptual Framework 223
Martin E. Bush and Norman E. Fenton

International Survey of Software Measurement Education and Training 233
Meg Russell

Quantitative Process Management in Software Engineering, A Reconciliation Between Process and Product Views 243
Robert Lanphar

Generalized Software Process-integrated Metrics Framework 249
Sandhiprakash Bhide

Software Metrics in the Process Maturity Framework 255
Shari Lawrence Pfleeger and Clement McGowan

Factor Analysis of Source Code Metrics 263
Daniel Coupal and Pierre N. Robillard

Data Analysis for Software Metrics 271
Alan Myrvold

A Philosophy for Software Measurement 277
Albert L. Baker, James M. Bieman, Norman Fenton, David A. Gustafson, Austin Melton, and Robin Whitty

Applications of a Relative Complexity Metric for Software Project Management 283
John C. Munson and Taghi M. Khoshgoftaar

Biographies 293

Volume 13, Number 1, September 1990

Contents

Editor's Corner: At Last—Some Measured Results of the "Structured Revolution" 1
Robert L. Glass

An Access Control Language for Object-oriented Programming Systems 3
Masaaki Mizuno and Arthur E. Oldehoeft

A Hybrid Knowledge-Based Approach to Structured Selection 13
Ric Frankel

Fault Tolerance on a Hypercube: A Database Application 25
Ophir Frieder

The Hermod Behavioral Synthesis System 39
Masayasu Odani, Sun Young Hwang, Tom Blank, and Tom Rokicki

Incremental Parsing of Expressions 55
Frans C. Heeman

On the Utility of Historical Project Statistics for Cost and Schedule Estimation: Results from a Simulation-based Case Study 71
Tarek K. Abdel-Hamid

Biographies 83

Volume 13, Number 2, October 1990

Contents

Editor's Corner: Automatic Programming—A Cocktail Party Myth? 85
Robert L. Glass

A Foreword to the Special Issue on Using Software Metrics 87
Warren Harrison

Integrating Metrics into a Large-Scale Software Development Environment 89
Sallie Henry and John Lewis

Software Metrics—A User's Perspective 97
James A. Redmond and Reynold Ah-Chuen

Software Metrics from a User's Perspective 111
Khosrow Dehnad

Assuring Software Quality through Measurements: A Buyer's Perspective 117
Samuel E. Hon III

Software Metrics and Plagiarism Detection 131
Geoff Whale

Software Metrics as a Programming Training Tool 139
Brent J. Bowman and William A. Newman

Biographies 149

Volume 13, Number 3, November 1990

Contents

Editor's Corner: Mikhail Gorbachev and Software Productivity (!?) 151
Robert L. Glass

Software Engineering—20 Years On and 20 Years Back 153
J. N. Buxton

Incremental Concurrent Builds for Modular Systems 157
Ray Ford and Mary Pfreundschuh Wagner

A Methodology for Test Selection 177
J. A. N. Lee and Xudong He

Dynamic Slicing of Computer Programs 187
Bogdan Korel and Janusz Laski

Spreadsheet Macro Programming: A Critique with Emphasis on Lotus 1-2-3 197
Chuck Litecky

A Performance Comparison of a Closely-Coupled and a Loosely-Coupled Architecture 201
Anna Hać and Theodore J. Johnson

The Use of a Repeated Phrase Finder in Requirements Extraction 209
Christine Aguilera and Daniel M. Berry

Controversy Corner: Improving Software Project Management 231
Brian E. Pulk

Biographies 237

1990 Subject Index 239

1990 Author Index 243